



Virtual Theatre

Technical Theatre
System Architecture



Logistics

- Anyone not here last time?
- E-mail
 - Should have gotten e-mail from me
- Mycourses
 - All students listed in 4003-590-09
- Student Info Forms
 - Due today



More logistics

- School of Design courses
 - Not meeting at same time ☹
 - Weekly “management” meeting



Peripherals



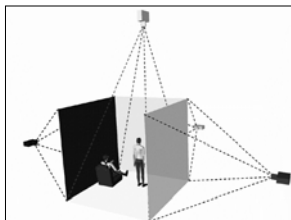
I-glasses Head Mounted Display
w/head tracker



5DT Data Glove



CAVE



DTI Stereo Monitor



2015XLS
15.1" 3D Flat Panel
Virtual Window Display
Details



Plan for today

- Introduction to Technical Theatre
- Overview of system architecture.



Theatre

The word comes from the Greek theatron, or "seeing place." It is a place where something is seen. And the companion term drama comes from the Greek dran, "to do." It is something done. An action. Theatre: something is seen, something is done. An action witnessed.



Theatre and Collaboration

There's no such thing as a one-man show.

Notes from Eric Trumbull
<http://novaonline.nv.cc.va.us/eli/spd130et/>



The Actor

- **Thespis** -- considered to be the first actor -- thus the term **thespian** -- 554 BC (193).
- **Acting consists of:**
 1. a series of tasks, usually in a situation or context;
 2. done usually as someone else; and
 3. imaginary -- at least part of it.



The Actor

- In virtual theatre
 - Virtual actor – seen by the audience
 - 3D model
 - Shape / form designed by artists.
 - Human actor – controls the virtual actor
 - moCap
 - Prescripted animation



The Director

- relatively new phenomenon – late 19th, early 20th century
 - Previous to this, done by chorus, playwright, manager.
- Originally a “management” rather than “artistic” position
- Today: Primary artistic contributor
 - Like “producer” of a musical recording?



The Director

- Decides on interpretation of script
- Casts actors
- Works with other theatre artists in designing the production
- Rehearses actors
- Coordinates all elements into a finished performance



The Director

- In virtual theatre
 - Direction of virtual performers
 - Tells virtual actors what to do
 - E.g. Flocking model
 - Direction of human performers
 - Tells virtual directors how to direct.



The Designers

- Creates stage elements
 - Costume
 - Scenic Design / Sets
 - Lighting
 - Sound
- Both artists and artisans.



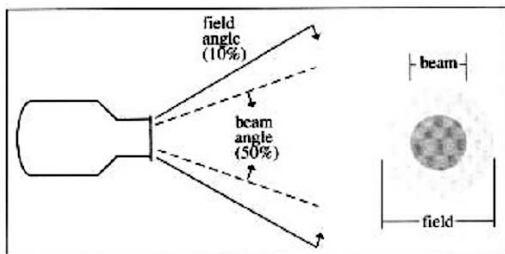
The Designers

- For virtual theatre
 - Tasks of school of design students
 - Except for sound design



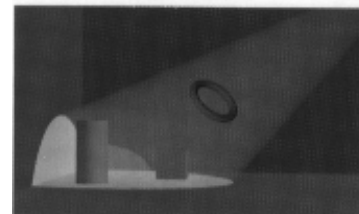
Lighting Design

- The primary light source is the spotlight



Light - Stage Lighting

- Basic Shape -- cone

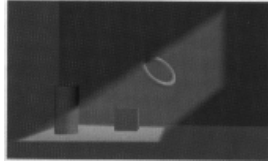
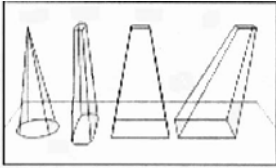


[Advanced Renderman]



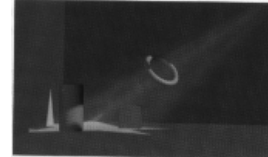
Light - Stage Lighting

- Shape
 - Barn doors (beam shape)



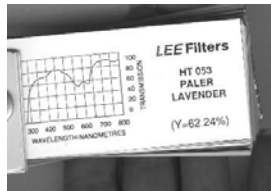
Light - Stage Lighting

- Shape – Gobos (use go between to shape beam)



Light -- Color

- Light Filters
 - ❖ Absorbs light at given wavelengths
 - ❖ Allows light at other wavelengths through
- Using filters
 - ❖ Actual SDF is determined by multiply SDF of light by SDF of filter wavelength by wavelength.



SDF for a filter



Lighting Design

- And virtual theatre
 - Maya lighting
 - Challenge: Maya -> MUPPETS translation.
 - Both have a “spotlight”
 - Color specification in RGB
- GRADS: interested? Nice grad project!



The Stage Manager

- link between the director and the cast and crew
- responsible for the organization of all on-stage and backstage events
- Takes over directorial tasks after opening night.



The Stage Manager

- And virtual theatre
 - Runs the performance both in virtual and physical space
 - Thankfully, control of virtual elements at his/her fingertips (or keyboard)
 - May have assistants to interface to physical world.



The Lighting Cue

- Tells what lights come on when and for how long
 - Lighting Designer – creates content of cue
 - Stage Manager – instructs the triggering of a cue
 - Operator – Moves the dimmer to turn on the light.



The Lighting Cue

- What light(s) must go on / off
- When
- How long should it take.
- Similar for sound, staging, etc.



The Cue in general

- The Cue controls one or more actions
 - Light action
 - Sound action
 - Stage action
- Each Action can have a duration
- Cues are “triggered” at a given time or by a given event.
 - Stage Manager / operator



The Audience

- a group of individuals gathered together at a certain time and place for no purpose other than to see the performance
- Audience for theatre performance has artistic self-awareness.
- The audience gives its "permission" to the art.



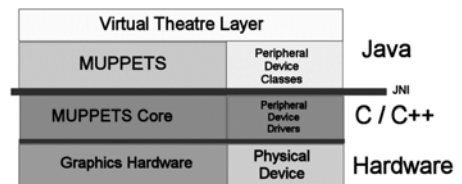
The Audience

- And virtual theatre
 - Active vs Passive audience
 - Own “seat” in virtual auditorium
 - Feedback



Technical Framework

- System Architecture



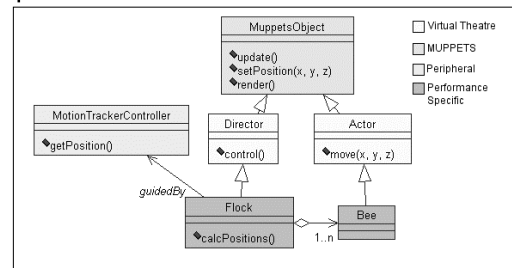


Technical Framework

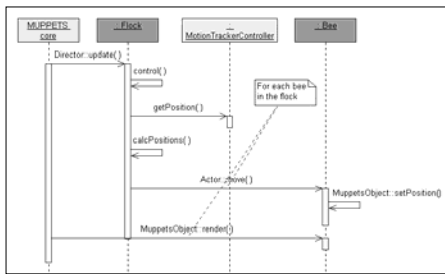
- Abstract Java classes
 - **Actor** – has methods for describing position and orientation within virtual space as well as a means to react with the stage environment.
 - **Director** – directs the behavior of an actor or actors.
 - **Stage Manager** – has the ability to define, set, and trigger lighting and staging cues.
 - **Stage Elements** – objects controllable by the stage manager. Can include lights, sets, props, etc.
 - **Audience** – has the ability to set their own view as well as respond to the performance.



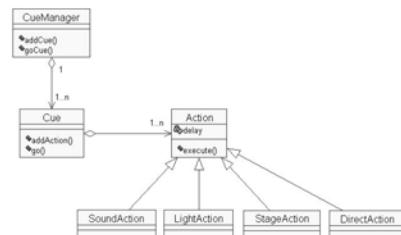
Technical Framework



Technical Framework



Defining Cues



Next Time

- Team definitions and assignments
- MUPPETS installation / introduction (perhaps)
 - Read MUPPETS papers on the Web!